

$\theta_1^\circ$  about the X axis as an axis of rotation and an arbitrary rotational  $\theta_2^\circ$  about the Y axis as an axis of rotation. The Examiner attempts to correct this deficiency with Miyachi. The Examiner asserts that Fig. 1 and column 15, lines 12-29 of Miyachi teach a retardation film with primary refractive indexes of a biaxial index ellipsoid obtained by rotating a first biaxial ellipsoid at an arbitrary rotational angle about the X and Y axes (*see* Office Action paragraph bridging pages 3 and 4). However, the Examiner has failed to identify sufficient motivation for combining Abileah and Miyachi. Also, even if one of ordinary skill in the art would have been motivated to modify Abileah with Miyachi, the combination would still be deficient, at least because Miyachi does not teach rotating a first biaxial ellipsoid at an arbitrary rotational angle about the X and Y axes as asserted by the Examiner.

Initially, the Examiner has failed to identify proper motivation for combining Abileah and Miyachi. Particularly, the Examiner has failed to explain why one of ordinary skill in the art would have expected that the Miyachi teachings would have been advantageously applied to the Abileah retardation films. For instance, the Examiner has failed to indentify motivation for one of ordinary skill in the art to look to the Miyachi teachings regarding a plate where two of the indexes are equal ( $n_a = n_b > n_c$ ) with regards to the Abileah films where  $n_x > n_z > n_y$ . Also, Abileah teaches that retardation films 204 and 207 are preferably non-tilted (*see* column 16, line 50), and therefore teaches away from the Miyachi rotation. Therefore, one of ordinary skill in the art would not have been motivated to modify Abileah with Miyachi as asserted by the Examiner.

Furthermore, even if Abileah were modified with Miyachi, the resultant device would still be deficient at least because Miyachi does not teach rotation around two different axes as

claimed. Instead, Miyachi merely teaches rotation about a single axis. As stated above, the Examiner acknowledges that Abileah does not teach the claimed rotation.

Claim 1 is directed to rotation about the X and the Y axes. With reference to the non-limiting embodiment of Fig. 1, there is rotation  $\theta_2$  about the Y axis and rotation  $\theta_1$  about the X axis. The  $n_x'$  (11a),  $n_y'$  (11b) and  $n_z'$  (11c) refractive indexes are all rotated according to both the  $\theta_1$  and  $\theta_2$  angles. Accordingly, the non-limiting embodiment results in a retardation film effective for reducing a coloring phenomenon and gray scale inversion and for enlarging a viewing angle of a liquid crystal display (*see* specification page 3, lines 13-20).

As can be seen in the non-limiting embodiment of Example 1 of the specification, when there is rotation about two axes, the viewing angle characteristics are greatly improved in the lateral direction and the viewing angle enlargement effect is recognized in the vertical direction. The projection profile of the refractive index ellipsoid of the retardation film in each of the lateral and vertical directions affects the performance. Particularly, the inclination direction of the axis of providing the maximum refractive index and a magnitude of the retardation in the profile. The projection profile of the refractive index ellipsoid in the case of rotating the biaxial refractive index ellipsoid about two axis as in the exemplary embodiment of the present application is different from the projection profile of the refractive index ellipsoid in the case of rotating the ellipsoid about a single axis. Such an effect is not obtained in the case of rotating a biaxial ellipsoid only about a single axis as shown in Comparative Example 1. Particularly, a yellowish color is strongly generated in the lateral direction (*see* page 15, lines 3-5). In comparison with the case of the rotation about only a single axis, more appropriate effect is

obtained in both of the lateral and the vertical directions in the case of rotating the ellipsoid about two axes. As can clearly be seen in Fig. 1 and in the Miyachi specification, unlike the claimed invention, Miyachi teaches rotation about a single axis.

With reference to Miyachi Fig. 1, The principal refractive indexes of the ellipsoid satisfy a relationship of  $n_a = n_b > n_c$ . Further, there is only a single rotation, about the X direction. Since rotation only takes place about the X direction, axes "c" and "b" are displaced from the Y and Z directions, but "a" is not displaced from the X direction. This is because the "a" axis merely rotates about itself. The operation of Miyachi is also clear from the specification. With reference to column 15, lines 12-18, the axes "c" and "b" are both described as being rotated about the "a" axis. Contrary to the Examiner's assertions, Fig. 1 of Miyachi teaches rotation only about a single axis. Accordingly, the axis "a" remains on the surface 102S while the axes "b" and "c" are rotated from their original directions (*see* column 15, lines 18-23). Therefore, even if it were appropriate to modify Abileah with Miyachi as suggested by the Examiner, the result still would not meet the claimed invention.

In view of the above, the claimed invention is allowable over the combined teachings and suggestions of Abileah and Miyachi at least because one of ordinary skill in the art would not have been motivated to combine the references as suggested by the Examiner. Also, any combination would still be deficient because neither of the references teaches rotation around two axes.

**Conclusion**

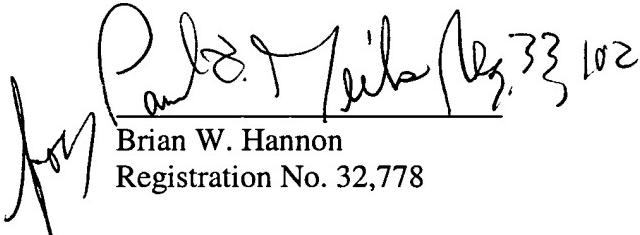
RESPONSE UNDER 37 C.F.R. § 1.111  
U.S. Application No. 10/686,672

Q78001

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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